



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/703,428	10/31/2000	Blaine D. Gaither	10001666-1	2979

22879 7590 10/30/2003

HEWLETT PACKARD COMPANY  
P O BOX 272400, 3404 E. HARMONY ROAD  
INTELLECTUAL PROPERTY ADMINISTRATION  
FORT COLLINS, CO 80527-2400

EXAMINER

TRAN, LAMBERT L

ART UNIT	PAPER NUMBER
----------	--------------

2142

DATE MAILED: 10/30/2003

4

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/703,428

Applicant(s)

GAITHER ET AL.

Examiner

Lambert L. Tran

Art Unit

2142

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 October 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

1. This Action is in response to the application filed on 31 October 2000.

### *Priority*

2. No claim for priority has been made in this application.

### *Double Patenting*

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1-36 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-10 of copending Application No. 09/703427 (HP PDNO 10008316-1). Although the conflicting claims are not identical, they are not patentably distinct from each other because the present claims simply do not provide any processing means with messaging paradigms in the claimed fault tolerant storage system. Neglecting this recited processing means difference, the present claims are broader than

Art Unit: 2142

the co-pending Application claims, and would necessarily conflict the co-pending Application claims.

5. This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Utter et al., U.S. Patent No 5,815,649, hereinafter referred to as Utter, in view of Byers et al., U.S. Patent No 5,809,543, hereinafter referred to as Byers.

8. In regard to claims 1, 10, 17, 25, 34-36, Utter disclosed a distributed fault tolerant digital data storage system comprising:

*a plurality of nodes* [see Utter, ABSTRACT, and figure 1];

*a fault tolerant storage system (FTSS)* [see Utter, ABSTRACT, and figure 1]; and

*an FTSS interconnection fabric coupling the plurality of nodes to the FTSS* [see Utter, ABSTRACT, and figure 1]; *wherein each node includes:*

*a network protocol stack for processing network I/O* [see Utter, col. 4, lines 41-45];

*an interface for sending data to and receiving data from the FTSS interconnection fabric (transmission and retrieval of data) [see Utter, ABSTRACT, and figure 1];*

*and*

*a packet conversion unit (switch) for linking the network protocol stack, thereby allowing network traffic to flow between the node and the FTSS via the FTSS interconnection fabric [see Utter, col. 4, lines 1-45];*

9. However, Utter did not expressly disclose:

*nonvolatile fault-tolerant storage media for storing data;*

*a file operations unit for completing file I/O operations to the nonvolatile fault tolerant storage media; and*

*a network routing agent for receiving packets from source nodes of the plurality of nodes, storing packets in the nonvolatile fault-tolerant storage media, and transmitting packets to destination nodes of the plurality of nodes.*

10. In the same field of data processing coupled to host processor systems [see Byers, col. 1, lines 63-65], Byers disclosed a fault tolerant storage system wherein:

*nonvolatile fault-tolerant storage media for storing data [see Byers, col. 5, lines 45-53];*

*a file operations unit for completing file I/O operations to the nonvolatile fault tolerant storage media [see Byers, col. 12, lines 36-60]; and*

*a network routing agent for receiving packets from source nodes of the plurality of nodes, storing packets in the nonvolatile fault-tolerant storage media, and transmitting packets to destination nodes of the plurality of nodes [see Byers, col. 34, lines 12-18].* An

ordinary artisan in the art at the same time the invention was made, would have been motivated

Art Unit: 2142

to look to a way to provide fault tolerant and quick recovery of data without the necessity of intervention by the computer system's processing elements in a distributed storage subsystem [see Utter, col. 2, lines 10-15].

11. Accordingly, it would have been obvious to one of ordinary skill in the network storage art at the time the invention was made to have incorporated Utter's teachings with the teachings of Byers, for the purpose of providing a system that is highly reliable, and to help alleviate I/O limitation on through put [see Byers, col. 2, lines 3-4, and lines 32-33].

12. For the rationale set forth above, claims 1, 10, 17, 25, 34-36 are rejected.

13. In regard to claims 2-3, 11, 18, 26-27, the combination inventions of Utter and Byers disclosed:

*sending an acknowledgment* [see Utter, col. 9, lines 22-58].

14. In regard to claims 4-5, 12, 19-20, 28-29, the combination inventions of Utter and Byers disclosed:

*deleting the packet, retaining the packet* (processing, discard) [see Utter, col. 6, lines 41-60, see Byers, col. 52, lines 43-58].

15. In regard to claims 6, 13, 21, 30, Byers disclosed *file I/O transaction* [see Byers, col. 12, lines 36-60].

16. In regard to claims 7, 14, 22, 31, the combination inventions of Utter and Byers disclosed:

*encapsulating the packet in a protocol* (processing and storage nodes) [see Utter, col. 4, lines 41-45, see Byers, col. 12, lines 36-60].

17. In regard to claims 8, 15, 23, 32, Byers disclosed: *storing the packet in a nonvolatile write cache* [see Byers, col. 16, lines 15-26].

18. In regard to claims 9, 16, 24, 33, Byers disclosed: storing the packet in a redundant array of independent disks [see Byers, col. 66, lines 3-4].

19. Since all the claims limitations are taught by the combination inventions of Utter and Byers, claims 1-36 are rejected.

20. Claims 1-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muller et al., U.S. Patent No 6,105,122, hereinafter referred to as Muller, in view of Blumenau et al., U.S. Patent No 6,421,711, hereinafter referred to as Blumenau.

21. In regard to claims 1, 10, 17, 25, 34-36, Muller disclosed a method for transferring data from a first node to a second node comprising:

*a plurality of nodes* [see Muller, ABSTRACT, and figure 1];

*a fault tolerant storage system (FTSS)* [see Muller, col. 26, lines 52-64, col. 43, lines 7-15]; and

*an FTSS interconnection fabric coupling the plurality of nodes to the FTSS* [see Muller, col. 25, lines 22-39]; *wherein each node includes:*

*a network protocol stack for processing network I/O* [see Muller, col. 21, lines 39-49];

*an interface for sending data to and receiving data from the FTSS interconnection fabric* [see Muller, ABSTRACT, and col. 25, lines 22-39];

and

*a packet conversion unit (the destination interconnect channel program is executed to process the packet) for linking the network protocol stack, thereby allowing*

Art Unit: 2142

*network traffic to flow between the node and the FTSS via the FTSS interconnection fabric [see Muller, col. 32, lines 14-39, and figure 11];*

22. However, Muller did not expressly disclose:

*nonvolatile fault-tolerant storage media for storing data;*

*a file operations unit for completing file I/O operations to the nonvolatile fault tolerant storage media; and*

*a network routing agent for receiving packets from source nodes of the plurality of nodes, storing packets in the nonvolatile fault-tolerant storage media, and transmitting packets to destination nodes of the plurality of nodes.*

23. In the same field of network storage subsystem, Blumenau disclosed a fault tolerant storage system wherein:

*nonvolatile fault-tolerant storage media for storing data [see Blumenau, col. 7, lines 2-7];*

*a file operations unit for completing file I/O operations to the nonvolatile fault tolerant storage media [see Blumenau, col. 31, lines 52-61]; and*

*a network routing agent for receiving packets from source nodes of the plurality of nodes, storing packets in the nonvolatile fault-tolerant storage media, and transmitting packets to destination nodes of the plurality of nodes [see Blumenau, col. 39, lines 12-*

21]. An ordinary artisan in the art at the same time the invention was made, would have been motivated to look to a way to provide increased flexibility in managing storage and computer resources [see Muller, col. 3, lines 13-14].

24. Accordingly, it would have been obvious to one of ordinary skill in the network storage art at the time the invention was made to have incorporated Muller's teachings with the teachings



Art Unit: 2142

of Blumenau, for the purpose of providing a system that is transparent to any high-level file system procedures that may be used by the hosts for managing access [see Blumenau, col. 2, lines 32-34].

25. For the rationale set forth above, claims 1, 10, 17, 25, 34-36 are rejected.

26. In regard to claims 2-3, 11, 18, 26-27, the combination inventions of Muller and Blumenau disclosed:

*sending an acknowledgment* [see Muller, col. 41, lines 9-14].

27. In regard to claims 4-5, 12, 19-20, 28-29, the combination inventions of Muller and Blumenau disclosed:

*deleting the packet, retaining the packet (copy, purge)* [see Muller, col. 40, lines 47-57, col. 41, lines 9-14].

28. In regard to claims 6, 13, 21, 30, Blumenau disclosed *file I/O transaction* [see Blumenau, col. 31, lines 52-61].

29. In regard to claims 7, 14, 22, 31, Muller disclosed:

*encapsulating the packet in a protocol* [see Muller, col. 31, lines 65-66].

30. In regard to claims 8, 15, 23, 32, Muller, and Blumenau disclosed: *storing the packet in a nonvolatile write cache* [see Blumenau, col. 7, lines 2-7, see Muller, col. 32, lines 51-55].

31. In regard to claims 9, 16, 24, 33, Muller disclosed: *storing the packet in a redundant array of independent disks* [see Muller, col. 43, lines 8-11].

32. Since all the claims limitations are taught by the combination inventions of Muller and Blumenau, claims 1-36 are rejected.

*Conclusion*

33. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Kandasamy et al., U.S. Patent No 5,513,314, disclosed fault tolerant NFS server system and mirroring protocol.
- b. Regula, U.S. Patent No 6,212,161, disclosed method and apparatus for fault tolerant software transparent and high data integrity extension to a backplane bus or interconnect.
- c. Zusman et al., U.S. Patent No 5,987,432, disclosed fault tolerant central ticker plant system for distributing financial market data.
- d. Alexander et al., U.S. Patent No 6,189,111, disclosed resource harvesting in scalable, fault tolerant, single system image clusters.
- e. Sheu U.S. Patent No 5,848,227, disclosed method for providing fault tolerant and switch-over distribution in a bridge/router.
- f. IETF: RFC 970, "On Packet Switches With Infinite Storage", Nagle, J., December 1985.

34. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lambert L. Tran whose telephone number is (703) 305-4663.

The examiner can normally be reached on M-F at 9AM - 5PM.

Art Unit: 2142

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A Wiley can be reached on (703) 308-5221. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-9700.

L.L.T  
Assistant Examiner  
GAU 2142  
October 24, 2003

MARC D. THOMPSON  
**MARC THOMPSON**  
PRIMARY EXAMINER

Marc Thompson  
Primary Examiner  
(703) 308-6750